UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,292	10/30/2000	Wen-Yin Liu	MS1-604US	1425

22801   7590   12/19/2002

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EXAMINER
TO, BAOQUOC N

ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	Applicant(s)
Office Action Summary	09/702,292	LIU ET AL.
	Examiner	Art Unit
	Baoquoc N To	2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

U.S. Patent and Trademark Office

PTO-326 (Rev. 04-01)   Office Action Summary   Part of Paper No. 5

DETAILED ACTION

1.   Claims 1-41 are presented for examination.

Claim Objections

2.   Claim 24 is objected to because of the following informalities: Two duplicate

words "with the" on line 8. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-3, 11, 27-28 and 31 are rejected under 35 U.S.C. 102(b) as being

anticipated by Dimitrova et al. (US. Patent No. 5,870,754).

Regarding on claims 1, 11 and 27, Dimitrova teaches a method comprising:

Initiating a search for images based (video clip) on a at least one query keyword

in an query (news) (col. 22, lines 10-24); and

Identifying, during the search, first images (56) (fig. 12) having associated

keywords that match the query keyword and second images (52) (fig. 12) that contain

low-level features similar to those of the first images (col. 9, lines 44-67).

Regarding on claims 2 and 28, Dimitrova teaches ranking the first and second

images (col. 22, lines 20-24).

Regarding on claims 3 and 31, Dimitrova teaches presenting the first (56) and

second images (52) (fig. 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 4-10, 12-23 and 33-41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dimitrova et al. (US. Patent No. 5,870,754) in view of Graham et al.

(US. Patent No. 6,369,811).

Regarding on claim 4, Dimitova presenting the first and second images to a user

(col. 22, lines 10-36); however, Dimitova does not explicitly teach monitoring feedback

from the user as to which of the first and second images are relevant to the query. On

the other hand, Graham teaches, "the modification may occur in the background or may

involve explicit user feedback input. The locations of concept if interest determined by

pattern identification stage 620 are monitor by profile updating stage 634. Profile stage

624 notes the proximity of other keywords and key phrase within each analyzed

document to the location of concepts of interest, the structure and contents of belief

system 700 are updated in the back ground without the user input by profile updating

data" (col. 7, lines 52-65). This teaches monitoring the feedback from the user or by the

system. Therefore, it would have been obvious to one ordinary skill in the art at the time

of the invention was made to modify the teaching of Graham into Dimitova in order to

provide relevant feedback from the user based on the user assessment of the retrieval

images.

Regarding on claims 5 and 32, Dimitrova teaches presenting the first and second

images to a user (col. 22, lines 10-36); However, Dimitova does not explicitly teach

receiving feedback from the user as to whether the first an second images are relevant

to the query; and learning how the first and second images are identified based on the

feedback from the user. On the other hand, Graham teaches, " The modification may

occur automatically in the back ground or may involve explicit user feedback input" (col.

7, lines 52-54). This teaches the modification to the keyword to the concept or images.

In addition, Graham teaches, "profile updating stage 624 notes the proximity of other

keywords and key phrase within each analyzer document to the locations of concepts of

interest. If particular keyword and key phrase are always near a concept of interest, the

structure and content of belief system 700 are updated in the background without user

input by profile updating stage 624" (col. 7, lines 56-62). This teaches the system learn

how to assign new keyword to the concept or image. Therefore, it would have been

obvious to one ordinary skill in the art at the time of the invention was made to employ

the learning technique of Graham into Dimitrova because by allowing the system

intelligently learning from the user feedback to introduce the new connection between

keyword and image to allow the user efficiently to retrieve better search results.

Regarding on claims 6 and 33, Dimitrova teaches presenting the first and second

images to a user (col. 22, lines 10-36); however, Dimitrova does not explicitly teach

receiving the user feedback for the user as to which of the first and second images are

relevant to the query; and refining the search to identify additional images that contain

low-level features similar to those of the images indicated by the user as being relevant

to the query. On the other hand, Graham teaches, "the modification may occur

automatically in the background or may involve explicit user feedback input" (col. 7,

lines 52-54). In addition, Graham also teaches, "the affect is to automatically refine the

patterns searched" (col. 7, lines 3-4). This teaches the system receiving user feedback

input and refines the search. Therefore, it would have been obvious to one ordinary

skill in the art at the time of the invention was made to modify the teaching of Graham

into Dimitrova in order to provide relevant feedback from the user and also allow the

user to refine the search when the retrieval results are not relevant.

Regarding on claims 7 and 34, Dimitrova teaches presenting the first and second images to a user (col. 22, lines 10-36); however, Dimitrova does not explicitly teach receiving feedback from the user as to which of the first and second images are relevant to the query; and assigning a large weight to an association between the query keyword and the images deemed relevant by the user. On the other hand, Graham teaches, "the modification may occur automatically in the background or may involve explicit user feedback input" (col. 7, lines 52-54). In addition, Graham also teaches, "changing probability values, introducing a new connection between a subconcept and concept, or introducing a new keyword or key phrase" (col. 7, lines 62-65). This teaches using the user's feedback to change or assign the new weight for the keyword or images to create the new connection between the keyword and the image or the document. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Graham into Dimitrova in order to allow the system to adjust the weighting process to determine which of the images are more relevant to the search query to enable the user to retrieve the better image for the next search.

Regarding on claims 8 and 35, Dimitrova teaches grouping the low-level features of the images deemed by relevant by the user (54, fig. 12).

Regarding on claims 9 and 36, Dimitrova teaches presenting the first and second images to a user (col. 22, lines 10-36); However, Dimitrova does not explicitly teach receiving feedback from the user identifying an example image as less or irrelevant to the query for refinement of the search; and assign a small weight to an association between the query keyword and the example image. Graham teaches, "the modification may occur automatically in the background or may involve explicitly user feedback input" (col. 7, lines 52-54). This teaches the system is receiving user' feedback. In addition, Graham also teaches, "user 504 indicates the selected keywords or key phrases to be a little interest, the probability values connecting these keywords or key phases to the concept decrease" (col. 8, lines 10-13). This teaches the value of the keyword associated with the concept is decreased if the keyword is not descriptive. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Dimitrova into Graham because by deceasing the value of a keyword associated with concept or image would allow the user to search again with the same keyword without receiving the same irrelevant concept or image.

Regarding on claims 10 and 37, Dimitrova teaches identifying additional images with low-level features similar to those of the example image (54, fig. 12).

Regarding on claims 12, 15, 39 and 41, Dimitrova teaches a method comprising:

Permitting entry of both keyword-based queries (query by keyword) and content-based queries (query by image) (fig. 12);

Finding images using both semantic-based image retrieval and low-level feature-based image retrieval (col. 22, lines 10-24);

Presenting the images to a user so that the user can indicate whether the images are relevant (col. 22, lines 19-20); and

Dimitrova does not explicitly teach conducting semantic-based relevance feedback and low-level feature-based relevance feedback in an integrated fashion. However, Graham teaches, "The first window 902 may not be necessary when adjusting the relevance level for a keyword or key phrase that is already a part of belief system. After the user selects a concept in the first feedback window 902, a second window feedback window 904 is displayed for selecting the degree of relevancy" (col. 9, lines 10-31). This teaches the user or the system can modify the association for the keyword to a concept or images. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Graham into Dimitrova because by utilizing the relevancy feedback would allow user to change the association between the keyword and the concept or image to allow the user to retrieve better result.

Regarding on claims 13 and 40, Dimitrova teaches ranking (ordering) the images (col. 22, lines 20-24).

Regarding on claim 14, Dimitrova teaches using images indicated (56, fig. 12) as being relevant to find additional images (54, fig. 12).

Regarding on claims 16 and 19, Dimitrova teaches a method comprising:

associating keywords with images to form keyword-image links (keyword to retrieve image) (query by keyword, fig. 12);

Assigning weight to the keyword-image links (col. 16, lines 21-23);

Presenting a result set of images obtained from an image retrieval search based on a query (col. 22, lines 5-24);

Dimitrova does not explicitly teaches receiving feedback from the user as to whether the images in the result set are relevant to the query; and modifying the weight according to the user feedback. However, Graham teaches, "The first window 902 may not be necessary when adjusting the relevance level for a keyword or key phrase that is already a part of belief system. After the user selects a concept in the first feedback window 902, a second window feedback window 904 is displayed for selecting the degree of relevancy" (col. 9, lines 10-31). This teaches the user or the system can modify the association for the keyword to a concept or image. In addition, Graham teaches, "if the particular keywords and key phrases are always near a concept of interest, the structure and contents of belief system 700 are updated stage 24. This

could means changing probability values, introducing a new connection between a subconcept and concept, or introducing a new keyword or key phrase. This teaches the keywords or key phrases are assigned with the new higher probability when the concept or image is relevance to the keyword. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify the teaching of Graham into Dimitrova because by utilizing the relevancy feedback would allow user to change the association between the keyword and the concept or image by adjusting the weight.

Regarding on claim 17, Graham teaches the modifying comprises increasing the weight of a keyword-image link for images deemed by the user as more relevant to the query (col. 7, lines 62-65).

Regarding on claim 18, Graham teaches the modifying comprises decreasing the weight of a keyword-image link for images deemed by the user as less relevant to the query (col. 8, lines 10-13).

Regarding on claims 20 and 23, Dimitrova teaches the a method comprising:

Presenting a result set of images that are returned that are returned from an image retrieval search of query having at least one keyword (col. 22, lines 10-24);

Dimitrova does not explicitly teach monitoring feedback from a user as to whether the image in the result set are relevant to the query; in an event that the user selects at least one image as being relevant to the query, associating the keyword in the query with the selected image to form a first keyword-image association and assigning a comparatively large weight to the first key-image association; and in an event that the user identifies an example image for refinement of the search, associating the keyword in the query with the example image to form a second keyword-image association and assigning a comparatively small weight to the second keyword-image association. However, Graham teaches, "The first window 902 may not be necessary when adjusting the relevance level for a keyword or key phrase that is already a part of belief system. After the user selects a concept in the first feedback window 902, a second window feedback window 904 is displayed for selecting the degree of relevancy" (col. 9, lines 10-31). This teaches the user or the system can modify the association for the keyword to a concept or image. In addition, Graham teaches, "if the particular keywords and key phrases are always near a concept of interest, the structure and contents of belief system 700 are updated stage 24. This could means changing probability values, introducing a new connection between a subconcept and concept, or introducing a new keyword or key phrase. This teaches the keywords or key phrases are assigned with the new higher probability when the concept or image is relevance to the keyword.

Further more, Graham also teaches, "if, on the other hand, user 504 indicates the

selected keywords or key phrases to be of little interest, the probability values

connecting these keyword or key phrase to the concept decrease" (col. 8, lines 10-14).

This teaches the probability value is decreased when the keywords or key phrases are

less relevance to the concept or image. Therefore, it would have been obvious to one

ordinary skill in the art at the time of the invention was made to modify the teaching of

Graham into Dimitrova because utilizing the relevance feedback would change the

probability values of the association between the keyword or key phrase and concept or

image to enable the user to obtain the better search using the same keyword.

Regarding on claim 21, Dimitrova teaches conducting both content-based image

retrieval and semantic-based image retrieval (col. 22, lines 10-24 and fig. 12)

Regarding on claim 22, Graham teaches presenting the result set of images

(concepts) in a user interface, the user interface (user feedback input) facilitating the

user feedback by allowing the user to indicate which images (concepts) are more

relevance (col. 7, lines 51-65) and which images are less relevant (col. 8, lines 10-13).

Regarding on claim 38, Dimitrova teaches structure stored on one or more

computer-readable media comprising:

Multiple images files (video clips or images) (col. 22, line 9);

Multiple keywords (using keywords search for images) (query keyword search,

fig. 12)

A semantic network to associated the keywords with the image files, the

semantic network defining individual keyword-image links that associate a particular

keyword with a particular image file (col. 22, lines 10-24), each keyword-image link

having a weight indicative of how relevant the particular keyword is to the particular

image file. Dimitrova does not explicitly teach each key word having the weight indicate

how relevant the particular keyword it to the particular image file. However, Graham

teaches, "this could mean changing probability values, introducing a new connection

between a subconcept and concept, or introducing a new keyword or key phrase" (col.

7, lines 62-65). This teaches there is a weight existed between the keywords or key

phases and the concept or image before using the user relevance feedback to change

the connection between keywords or key phrase with the concept or image. Therefore,

it would have been obvious to one ordinary skill in the art at the time of the invention

was made to modify the teaching of Dimitrova into Graham because by assigning the

weight to the keyword would allow the system to determine the irrelevant or relevance

when the value of the keyword increase or decrease based on the user relevance

feedback.

5.   Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Dimitrova et al. (US. Patent No. 5,870,754) in view of Stuckey et al. (US. Patent

No. 5,721,938).

Regarding on claim 29, Dimitrova does not explicitly teaches the query handler

comprises a natural language parser; however, Stuckey teaches, "present program

provides a natural text parser, which may be used for all natural languages" (col. 3, lines

22-24). This teaches the query is inputted by the natural language. Therefore, it would

have been obvious to one ordinary skill in the art at the time of the invention was made

to modify the teaching of Stuckey into Dimitrova because utilizing the natural language

parser would allow the user to input the natural language to search and to provide a

user-friendly system.

Regarding on claim 30, Stuckey teaches the query handler comprises:

A parser to parse text-based queries (col. 3, lines 22-24); and

A concept hierarchy to define various categories of images (col. 12, lines 22-25).

6.   Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Abdel-Mottaleb et al. (US. Patent No. 6,285,995) in view of Kopec et al. (US. Patent

No. 5,594,809).

Regarding on claim 24, Abdel-Mottaleb teaches a method comprising:

Computing, for each category, a representative feature vectors of a set of

existing images with the category (col. 5, lines 15-20);

Determining a set of representative keywords (keywords adds to image) that are

associated with the existing images in each category (col. 5, lines 10-12);

Comparing (comparison unit 128), for each new image, the low-level feature

vectors of the new image to the representative feature vectors of the existing images in

each category to identify a closet matching category (col. 5, lines 45-65); and

Abdel-Mottaleb does not explicitly teach labeling the new image with the set of

representative keywords associated the closet matching category; however, Kopec

teaches, "in input keyword image sample into image segments, and providing labels for

the image segments" (col. 7, lines 63-65). This teaches the image segment is labeled

by the keyword. Therefore, it would have been obvious to one ordinary skill in the art at

the time of the invention was made to employ the teaching of Kopec into Abdel-Mottaleb

in order to match the image with the keyword to allow the user search for these images

with the same keyword.

Regarding on claim 25, Abdel-Mottaleb teaches using feedback to selectively

add and/or remove keywords from the new image (col. 5, lines 10-12).

Regarding on claim 26, Abdel-Mottaleb teaches placing the labeled new images into a holding category (col. 5, lines 15-20).

Abdel-Mottaleb does not explicitly teach evaluating the labeled new images in the holding category to determine if any of the keywords associated with the labeled new image match the representative keywords from each category; and assigning the labeled new image to the category that best matches the keywords associated with the labeled with the labeled new image.

Spec teaches evaluating the labeled new images in the holding category to determine if any of the keywords associated with the labeled new image match the representative keywords from each category (col. 7, lines 63-65); and assigning (input keyword image) the labeled new image to the category that best matches the keywords associated with the labeled with the labeled new image (col. 7, lines 64-65).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to employ the teaching of Kopec into Abdel-Mottaleb in order to match the image with the keyword to allow the user search for these images with the same keyword.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is (703) 305-1949 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached at (703) 305-4393.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

> Commissioner of Patents and Trademarks
> Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

- (703) 746-7238   [After Final Communication}]
- (703) 746-7239   [Official Communication]
- (703) 746-7240   [Non-Official Communication]

Hand-delivered responses should be brought to:

> Crystal Park II
> 2121 Crystal Drive
> Arlington, VA 22202
> Fourth Floor (Receptionist).

JEAN M. CORRIELUS
PRIMARY EXAMINER

Baoquoc N. To
November 28, 2002